FIG. 1

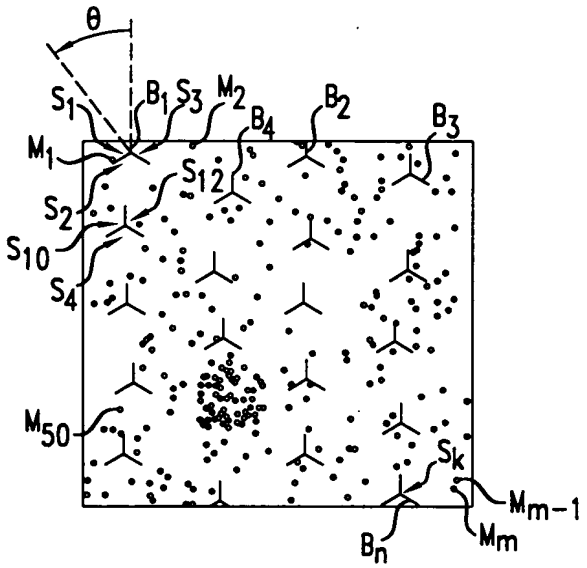
θ
S1
B1
S3
M2
B4
B2
B3
M1
S12
S2
S10
S4
M50
Sk
Mm-1
Bn
Mm

FIG. 2

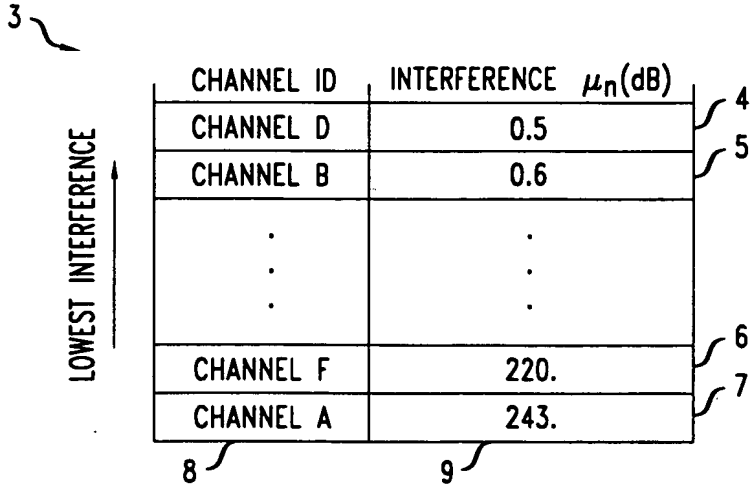
3
CHANNEL ID
INTERFERENCE μn(dB)
CHANNEL D
0.5
CHANNEL B
0.6
CHANNEL F
220.
CHANNEL A
243.
LOWEST INTERFERENCE
4
5
6
7
8
9

FIG. 3

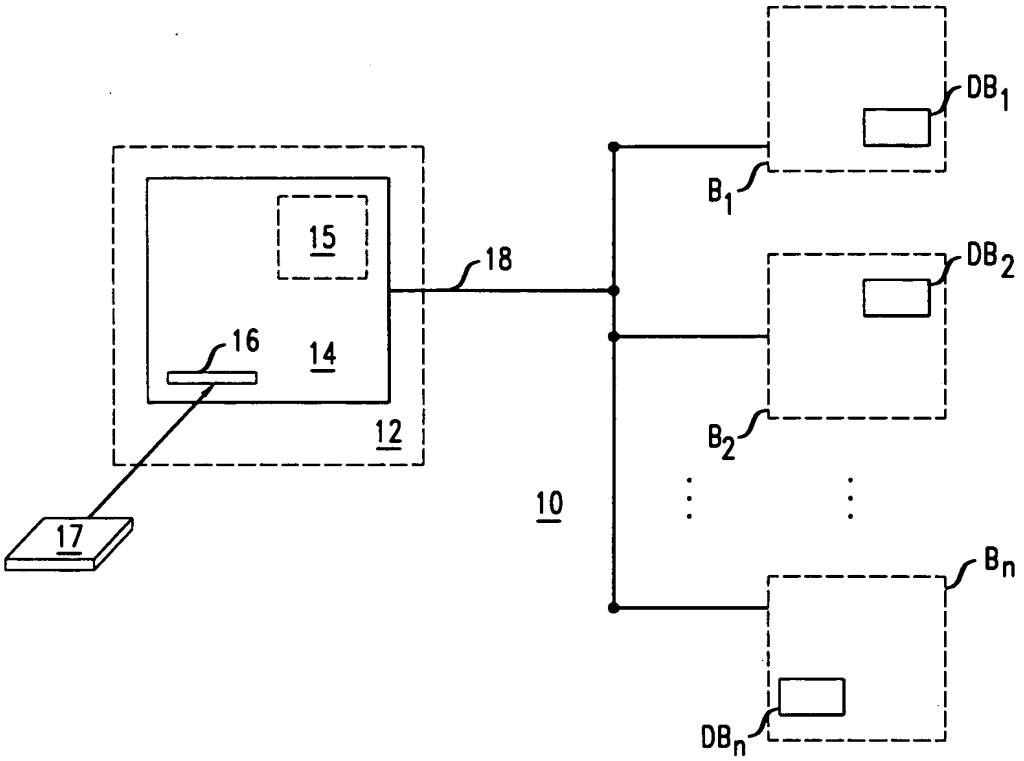

FIG. 4

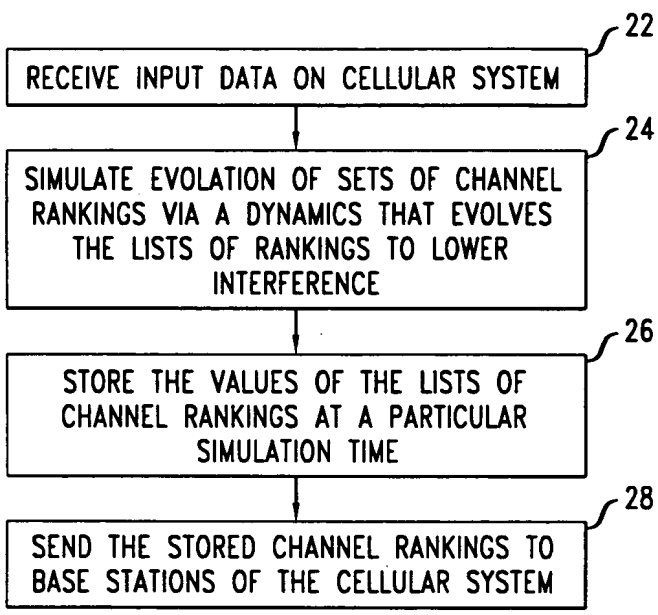
20
22
RECEIVE INPUT DATA ON CELLULAR SYSTEM
24
SIMULATE EVOLATION OF SETS OF CHANNEL RANKINGS VIA A DYNAMICS THAT EVOLVES THE LISTS OF RANKINGS TO LOWER INTERFERENCE
26
STORE THE VALUES OF THE LISTS OF CHANNEL RANKINGS AT A PARTICULAR SIMULATION TIME
28
SEND THE STORED CHANNEL RANKINGS TO BASE STATIONS OF THE CELLULAR SYSTEM

FIG. 5

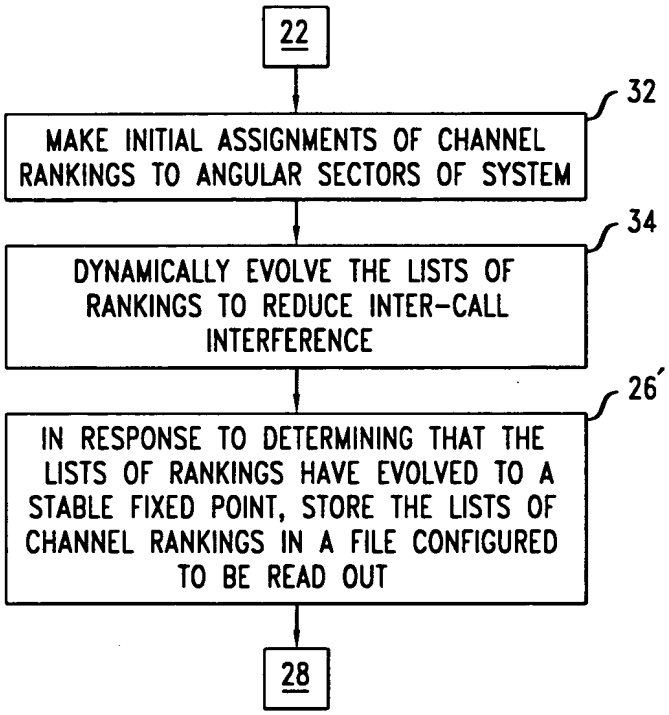
22
32
MAKE INITIAL ASSIGNMENTS OF CHANNEL RANKINGS TO ANGULAR SECTORS OF SYSTEM
34
DYNAMICALLY EVOLVE THE LISTS OF RANKINGS TO REDUCE INTER-CALL INTERFERENCE
26'
IN RESPONSE TO DETERMINING THAT THE LISTS OF RANKINGS HAVE EVOLVED TO A STABLE FIXED POINT, STORE THE LISTS OF CHANNEL RANKINGS IN A FILE CONFIGURED TO BE READ OUT
28

FIG. 6

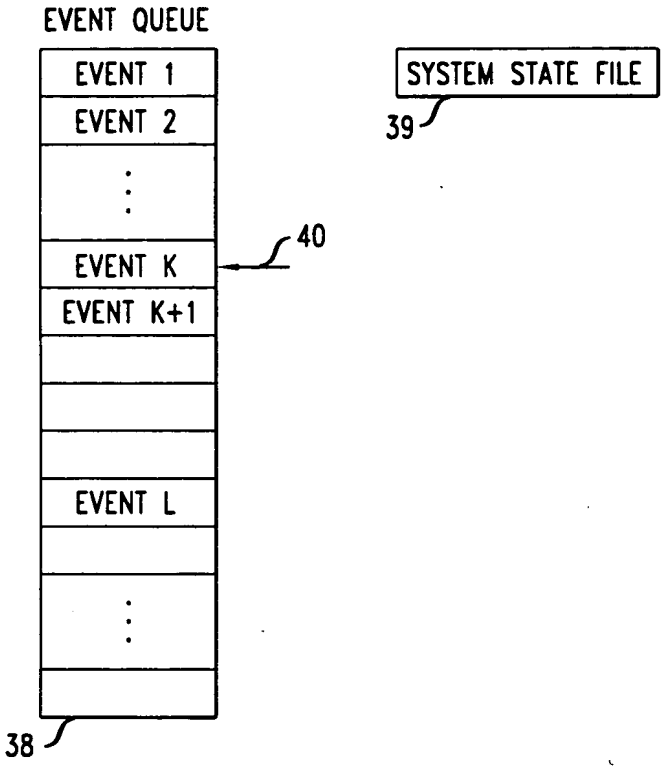

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FIG. 7

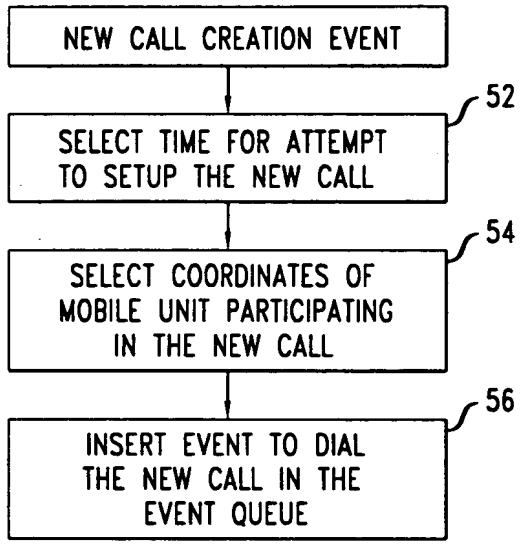

NEW CALL CREATION EVENT
50
SELECT TIME FOR ATTEMPT TO SETUP THE NEW CALL
52
SELECT COORDINATES OF MOBILE UNIT PARTICIPATING IN THE NEW CALL
54
INSERT EVENT TO DIAL THE NEW CALL IN THE EVENT QUEUE
56

FIG. 8

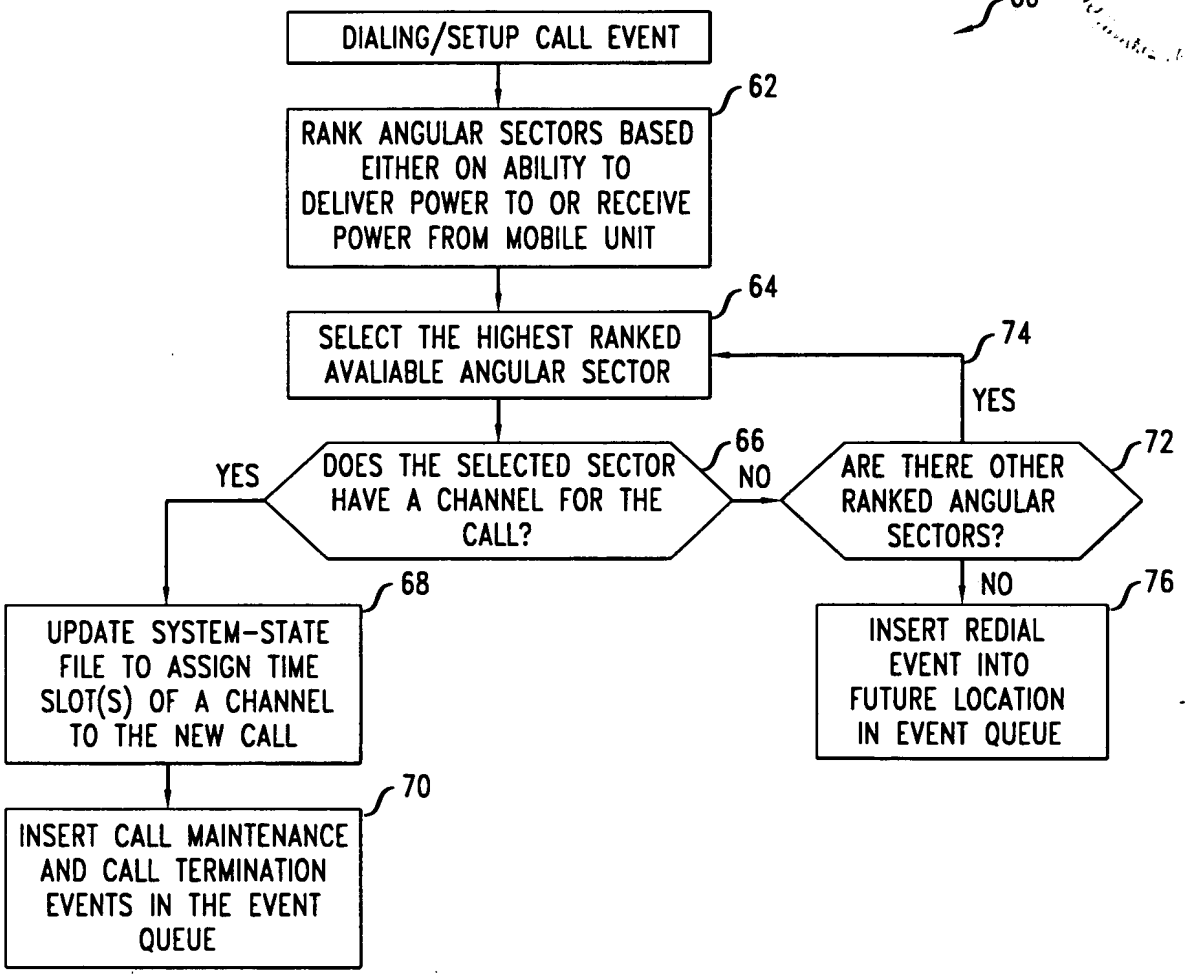

60
DIALING/SETUP CALL EVENT
62
RANK ANGULAR SECTORS BASED EITHER ON ABILITY TO DELIVER POWER TO OR RECEIVE POWER FROM MOBILE UNIT
64
SELECT THE HIGHEST RANKED AVALIABLE ANGULAR SECTOR
74
YES
66
DOES THE SELECTED SECTOR HAVE A CHANNEL FOR THE CALL?
YES
NO
72
ARE THERE OTHER RANKED ANGULAR SECTORS?
NO
68
UPDATE SYSTEM-STATE FILE TO ASSIGN TIME SLOT(S) OF A CHANNEL TO THE NEW CALL
70
INSERT CALL MAINTENANCE AND CALL TERMINATION EVENTS IN THE EVENT QUEUE
76
INSERT REDIAL EVENT INTO FUTURE LOCATION IN EVENT QUEUE

FIG. 9

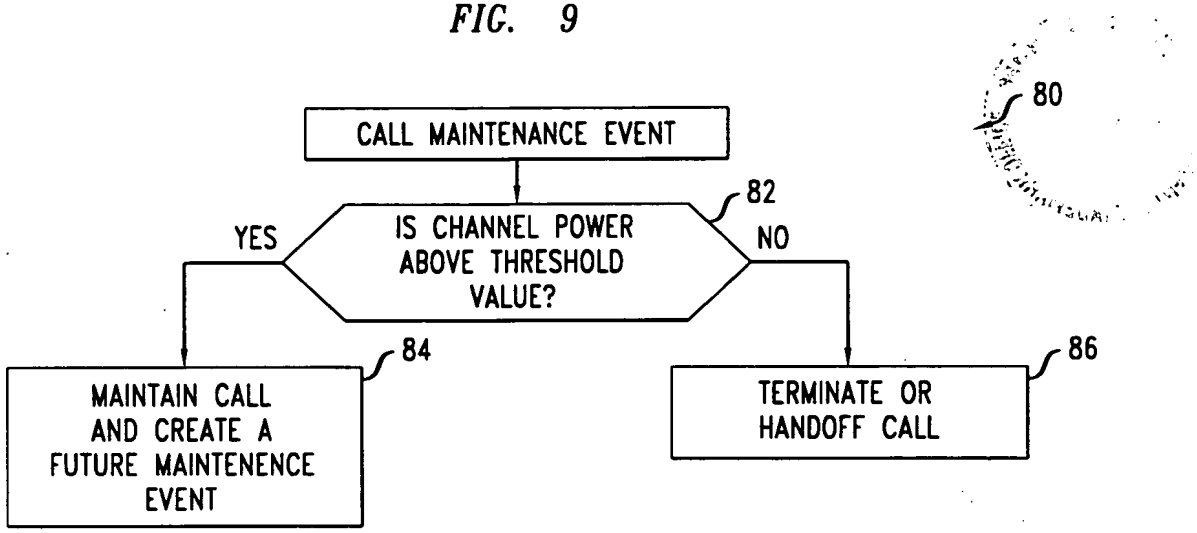

80
CALL MAINTENANCE EVENT
82
IS CHANNEL POWER ABOVE THRESHOLD VALUE?
YES
NO
84
MAINTAIN CALL AND CREATE A FUTURE MAINTENENCE EVENT
86
TERMINATE OR HANDOFF CALL

FIG. 10

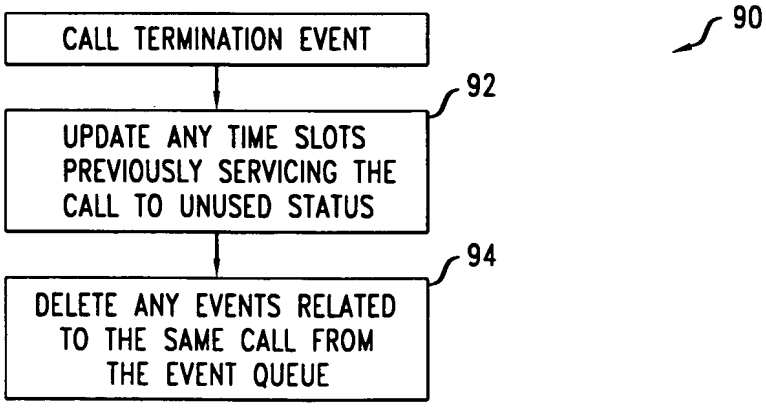

90
CALL TERMINATION EVENT
92
UPDATE ANY TIME SLOTS PREVIOUSLY SERVICING THE CALL TO UNUSED STATUS
94
DELETE ANY EVENTS RELATED TO THE SAME CALL FROM THE EVENT QUEUE

FIG. 11

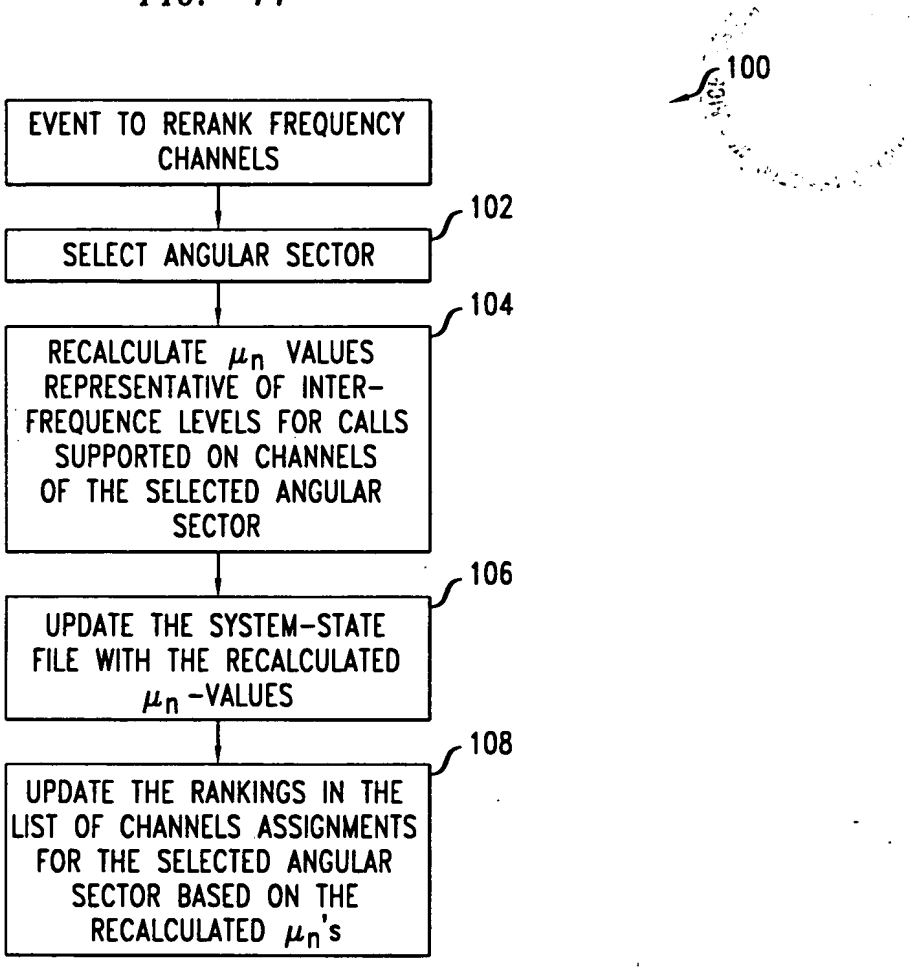

100
EVENT TO RERANK FREQUENCY CHANNELS
102
SELECT ANGULAR SECTOR
104
RECALCULATE μ_n VALUES REPRESENTATIVE OF INTER-FREQUENCE LEVELS FOR CALLS SUPPORTED ON CHANNELS OF THE SELECTED ANGULAR SECTOR
106
UPDATE THE SYSTEM-STATE FILE WITH THE RECALCULATED μ_n -VALUES
108
UPDATE THE RANKINGS IN THE LIST OF CHANNELS ASSIGNMENTS FOR THE SELECTED ANGULAR SECTOR BASED ON THE RECALCULATED μ_n's

FIG. 12

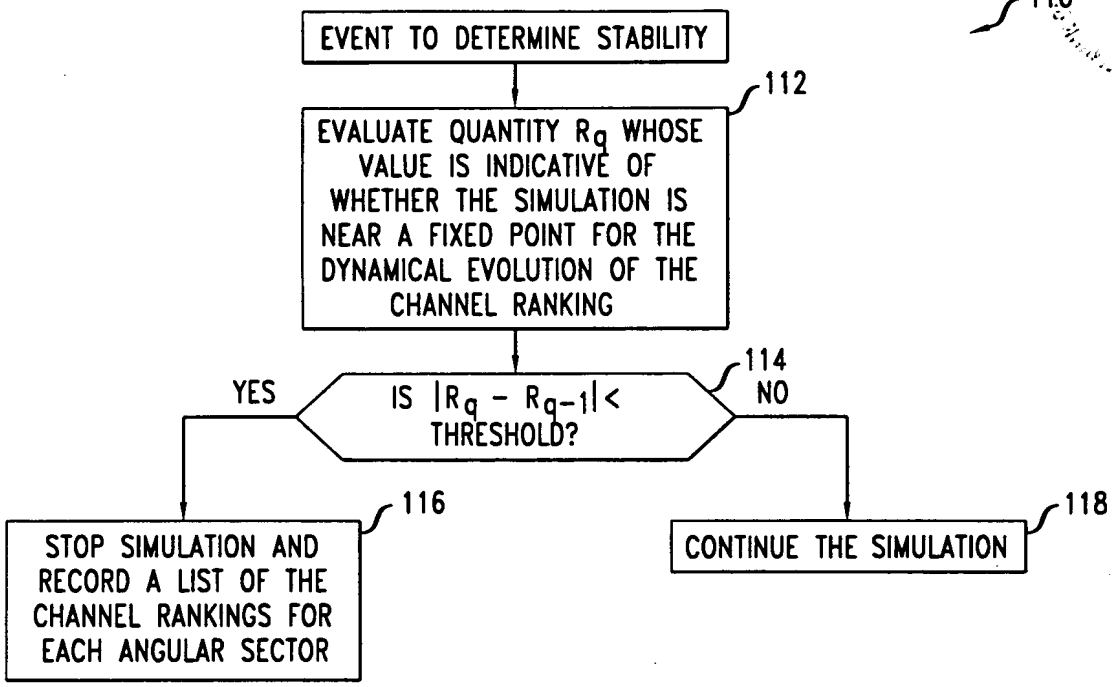
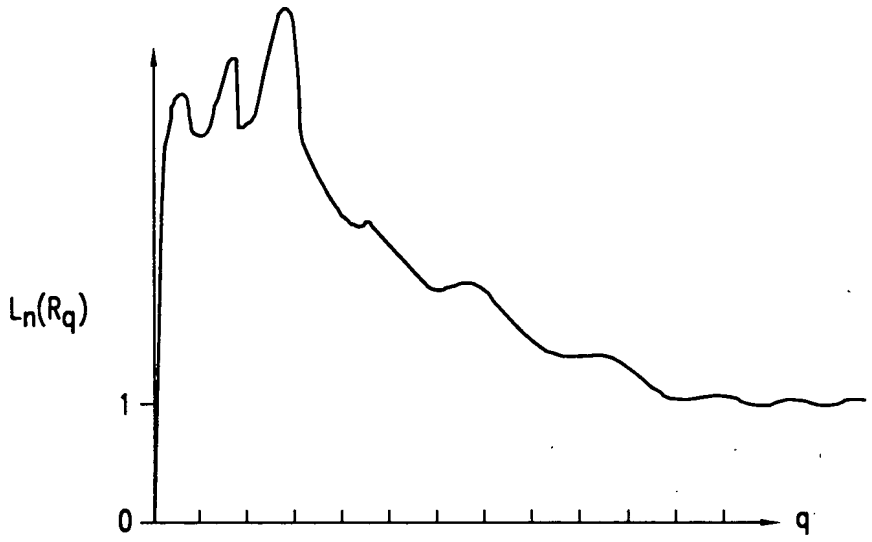

110
EVENT TO DETERMINE STABILITY
112
EVALUATE QUANTITY R_q WHOSE VALUE IS INDICATIVE OF WHETHER THE SIMULATION IS NEAR A FIXED POINT FOR THE DYNAMICAL EVOLUTION OF THE CHANNEL RANKING
114
IS $|R_q - R_{q-1}|$ < THRESHOLD?
YES
NO
116
STOP SIMULATION AND RECORD A LIST OF THE CHANNEL RANKINGS FOR EACH ANGULAR SECTOR
118
CONTINUE THE SIMULATION

FIG. 13



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